UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,982	03/26/2004	Jimmy Dean Gamble	3177-73576	9622

23643 7590 06/22/2006

BARNES & THORNBURG
11 SOUTH MERIDIAN
INDIANAPOLIS, IN 46204

EXAMINER	
RIVELL, JOHN A	

ART UNIT	PAPER NUMBER
3753	

DATE MAILED: 06/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/810,982	GAMBLE, JIMMY DEAN	
	Examiner	Art Unit	
	John Rivell	3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3/26/04 (application)*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-11,13-15,20-22,24,27-36,38,41 and 43* is/are rejected.

7)☒ Claim(s) *3,12,16-19,23,25,26,37,39,40 and 42* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 September 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *06242004, 02182005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *IDS 09082005, 05312006*.

Claims 1-43 are pending.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 43 are rejected under 35 U.S.C. §102 (b) as being anticipated by Osterbrink (EP 0 864 456 cited by applicant).

The document to Osterbrink discloses a "fuel-transfer system for a fuel system of a vehicle including a filler neck (16, 16a) and a fuel tank (12, 12a) including a top wall and a bottom wall spaced apart from the top wall, the fuel-transfer system comprising a valve carrier (housing 24) formed to include a valve seat (48) and a fuel-transfer channel (inlet path 32) terminating at the valve seat (48) and adapted to be coupled to a filler neck (at 16, 16a) and a fuel tank (12, 12a) to conduct fuel from the filler neck to the fuel tank through the fuel-transfer channel and a tank inlet check valve apparatus (generally at 20) mounted on the valve carrier (24) for pivotable movement about a pivot axis (at pivot pin 62) between a closed position engaging the valve seat (48) to block discharge of fuel from the fuel-transfer channel and an opened position disengaging the valve seat (48) to allow discharge of fuel from the fuel-transfer channel, the tank inlet

check valve apparatus including a valve mover (pivot arm 60) pivotably coupled (at pin 62) to the valve carrier (24) at the pivot axis, a diverter valve including a closure (read at the valve head body 86) coupled to the valve mover (60) for movement therewith and a seal ring (88) coupled to the closure (86) to move therewith relative to the valve seat (48), and a biasing spring (72) arranged to yieldably pivot the valve mover (60) about the pivot axis (at pin 62) to move the closure (86) normally toward the valve seat (48) to trap the seal ring (88) between the closure (86) and the valve seat (48) to locate the tank inlet check valve apparatus (20) in the closed position" as recited in claim 1.

Regarding claim 43, Osterbrink discloses a "fuel-transfer system for a fuel system of a vehicle including a filler neck (16, 16a) and a fuel tank (12, 12a), the fuel-transfer system comprising a valve carrier (housing 24) formed to include a valve seat (48) and a fuel-transfer channel (32) terminating at the valve seat (48) and adapted to be coupled to a filler neck (16, 16a) and a fuel tank (12, 12a) to conduct fuel from the filler neck to the fuel tank through the fuel-transfer channel (32) and a tank inlet check valve apparatus (generally at 20) mounted on the valve carrier (24) for movement between a closed position engaging the valve seat (48) to block discharge of fuel from the fuel-transfer channel and an opened position disengaging the valve seat (48) to allow discharge of fuel from the fuel-transfer channel (32), the tank inlet check valve apparatus including a valve mover (arm 60) mounted for movement on the valve carrier (24), a biasing spring (72) arranged normally to urge the valve mover (60) in a direction toward the valve seat (48), a valve including a closure (86) and a sealing ring (88) coupled to the closure to move therewith relative to the valve seat (48), and means (at

58, 66, 70) for coupling the closure (86) to the valve mover (60) to allow rotary motion of the valve (86) relative to the valve mover (60) in every direction (e.g. it "floats" and "pivots", column 4, lines 17-34) within predetermined limits so that the sealing ring (88) is self-aligning and mates with the valve seat (48) upon movement of the tank inlet check valve apparatus (20) to the closed position" as recited.

Claim 41 is rejected under 35 U.S.C. §102 (e) as being anticipated by Martin et al.

The patent to Martin et al. discloses a "fuel-transfer system for a fuel system of a vehicle including a (inherent) filler neck and a (inherent) fuel tank including a top wall and a bottom wall spaced apart from the top wall, the fuel-transfer system comprising a valve carrier (generally at 12, fig. 2) including a pipe formed to include a fuel-transfer channel (inlet 14) and a valve seat (26) defining an opening into the fuel-transfer channel and a sleeve (the tubular element integral with element 12 about seat 26 and the two projection fingers 28, 30) located adjacent to a portion of the pipe formed to include the valve seat (26), the sleeve is formed to include a first pin receiver (40), a first pin guide slot (32) terminating at the first pin receiver (40), a second pin receiver (42), and a second pin guide slot (34) terminating at the second pin receiver (42), and a tank inlet check valve apparatus (generally at 44) mounted on the sleeve for pivotable movement about a pivot axis between a closed position engaging the valve seat (26) to block discharge of fuel from the fuel-transfer channel and an opened position disengaging the valve seat (26) to allow discharge of fuel from the fuel-transfer channel, the tank inlet check valve apparatus including first and second pivot pins (inwardly

extending from trunnions 54, 56, respectively) extending in opposite directions from one another to extend along the pivot axis respectively into the first (40) and second (42) pin receivers formed in the sleeve to support the tank inlet check valve apparatus (44) for pivotable movement about the pivot axis" as recited.

Claim 1 is further, and claims 2, 4-9, 20, 24, 27-29 and 32-35 are rejected under 35 U.S.C. §102 (a) or 35 U.S.C. §102(e) as being anticipated by Krishnamoorthy et al. (Patent Application Publication No. 20030116202).

The Patent Application Publication of Krishnamoorthy et al. discloses a "fuel-transfer system for a fuel system of a vehicle including a filler neck (26) and a fuel tank (12) including a top wall and a bottom wall spaced apart from the top wall, the fuel-transfer system comprising a valve carrier (tubular body 28) formed to include a (inherent) valve seat (at the lower end of tube 28 mating with seal 52) and a fuel-transfer channel (within 28) terminating at the valve seat and adapted to be coupled to a filler neck (26) and a fuel tank (12) to conduct fuel from the filler neck to the fuel tank through the fuel-transfer channel and a tank inlet check valve apparatus (generally at valve member 50) mounted on the valve carrier (28) for pivotable movement about a pivot axis between a closed position engaging the valve seat to block discharge of fuel from the fuel-transfer channel and an opened position disengaging the valve seat to allow discharge of fuel from the fuel-transfer channel, the tank inlet check valve apparatus including a valve mover (pivot arms 54) pivotably coupled to the valve carrier (28) at the pivot axis, a diverter valve including a closure (i.e. the valve head) coupled to the valve mover (54) for movement therewith and a seal ring (52) coupled to the closure

to move therewith relative to the valve seat, and a biasing spring (41, 48) arranged to yieldably pivot the valve mover (54) about the pivot axis to move the closure (head) normally toward the valve seat to trap the seal ring (52) between the closure (head) and the valve seat to locate the tank inlet check valve apparatus in the closed position" as recited in claim 1.

Regarding claim 2, in Krishnamoorthy et al. "the closure (head) includes a mover mount coupled to the valve mover (arms 54), a seal mount coupled to a peripheral portion of the mover mount and coupled to the seal ring (52), and a siphon tube deflector (61) coupled to the mover mount and arranged to extend into the fuel-transfer channel upon movement of the seal ring (52) to engage the valve seat (as shown in fig. 3) and adapted to intercept and guide a siphon tube (62, dotted lines) moving through the filler neck into the fuel-transfer channel toward a bottom wall of the fuel tank" as recited.

Regarding claim 4, in Krishnamoorthy et al., "the siphon tube deflector (61) includes a ridge (e.g. a point) adapted to engage a siphon tube (62) extending through the filler neck to reach the bottom wall of the fuel tank upon movement of the tank inlet check valve apparatus to the opened position to retain the tank inlet check valve apparatus in the opened position and an inclined surface (extending along a slope from the "point" to the valve head) arranged to extend between the mover mount (valve head) and the ridge and intercept a siphon tube (62) passing through the fuel-transfer channel and into the fuel tank to move the valve mover against the biasing spring (48)

to cause the tank inlet check valve apparatus to move to the opened position" as recited.

Regarding claim 5, in Krishnamoorthy et al., "the valve carrier (28) includes a pipe having an interior wall defining a boundary of the fuel-transfer channel and a plurality of siphon tube guides (34, see para [0015]) coupled to the interior wall to lie in the fuel-transfer channel and arranged cooperatively to define means for guiding a tip of a siphon tube (62) moving in the fuel-transfer channel in a direction toward the tank inlet check valve apparatus to intercept in sequence the inclined (sloping) surface and the ridge (point) of the siphon tube deflector (61) to cause the tank inlet check valve apparatus to move to the opened position in response to continued movement of the tip of the siphon tube (62) toward the bottom wall of the fuel tank" as recited.

Regarding claim 6, in Krishnamoorthy et al., "the valve carrier (28) includes a pipe having an interior wall defining a boundary of the fuel-transfer channel and a plurality of siphon tube guides (34, see para[0015]) coupled to the interior wall and arranged to lie in spaced-apart relation to one another and extend toward a longitudinally extending central axis of the pipe to define therebetween a reduced-diameter passageway in the fuel-transfer channel sized to receive a siphon tube (62) moving in the fuel-transfer channel toward the tank inlet check valve apparatus and guide that siphon tube to engage the siphon tube deflector (61) coupled to the mover mount" as recited.

Regarding claim 7, in Krishnamoorthy et al., "the interior wall of the pipe (28) has a cylindrical shape and the plurality of siphon tube guides (34, para [0015]) are circumferentially spaced apart from one another about the interior wall" as recited.

Regarding claim 8, in Krishnamoorthy et al., "each of the siphon tube guides (34) is fin-shaped and cantilevered to the interior wall of the pipe (28)" as recited.

Regarding claim 9, in Krishnamoorthy et al., "each of the siphon tube guides (34) includes a slide edge (a flat edge parallel to the longitudinal axis of the device) arranged to lie in substantially parallel relation to a longitudinally extending central axis of the pipe (28) and in close proximity to the valve seat and a (upstream facing) sloping ramp edge having a leading edge merging with the interior wall of the pipe (28) and a trailing edge merging with the slide edge to cause the sloping ramp edges of the siphon tube guides (34) to converge toward the longitudinally extending central axis of the pipe (28) in a direction toward the valve seat" as recited.

Regarding claim 20, in Krishnamoorthy et al., "the valve mover (arms 54) includes a base coupled to the closure (i.e. the valve head) and first and second pivot arms (54) coupled to the base, a first pivot pin (56) coupled to the first pivot arm (54) and arranged to extend into a first pin receiver (38) formed in the valve comer ([sic] carrier) to intersect the pivot axis, and a second pivot pin (56) coupled to the second pivot arm (54) and arranged to extend into a second pin receiver (38) formed in the valve carrier to intersect the pivot axis" as recited.

Regarding claim 24, in Krishnamoorthy et al., "one of the pivot arms includes a coil support (for coil spring 48), the valve mover includes an arm receiver (60, fig. 6)

located between the first and second pivot arms (54), and the biasing spring (48) includes a coil mounted on the coil support, a housing arm (opposite 41) coupled to the coil and biased to engage the valve carrier (at 60), and a mover arm (54) coupled to the coil and biased to engage the arm receiver" as recited.

Regarding claim 27, Krishnamoorthy et al. discloses a "fuel-transfer system for a fuel system of a vehicle including a filler neck and a fuel tank, the fuel-transfer system comprising a valve carrier (28) formed to include a valve seat (at the bottom of tube 28) and a fuel-transfer channel (within 28) and adapted to be coupled to a filler neck (26) and a fuel tank (12) to conduct fuel from the filler neck to the fuel tank through the fuel-transfer channel,. a diverter valve (generally at 50) configured to mate with the valve seat and formed to include a siphon tube deflector (61), a valve mover (arms 54) coupled to the diverter valve and pivotably coupled to the valve carrier (28) at the pivot axis (of pins 56), and a biasing spring (48) arranged yieldably to pivot the valve mover (54) about the pivot axis normally to move the diverter valve to mate with the valve seat (seal 52 seal against the bottom of tube 28) to assume a closed position blocking discharge of fuel from the fuel-transfer channel through an opening formed in the valve seat and to project the siphon tube deflector (61) into the fuel-transfer channel upon movement of the diverter valve to assume the closed position to intercept and guide a siphon tube (62) moving through the filler neck into the fuel-transfer channel toward a bottom wall of the fuel tank" as recited.

Regarding claim 28, in Krishnamoorthy et al., "the siphon tube deflector (61) includes a ridge (e.g. a point) configured to provide means for engaging a siphon tube

(62) extending through the filler neck to reach the bottom wall of the fuel tank upon movement of the diverter valve (50) to an opened position to retain the diverter valve (50) in the opened position and an inclined surface (sloping from the "point" to the valve head) configured to provide means for intercepting a siphon tube (62) passing through the fuel-transfer channel and into the fuel tank to move the valve mover (54) against the biasing spring (48) to cause the diverter valve to move to the opened position and place the siphon tube in engagement with the ridge" as recited.

Regarding claim 29, in Krishnamoorthy et al., "the valve carrier (28) includes a pipe having an interior wall defining a boundary of the fuel-transfer channel and a plurality of siphon tube guides (34, see para [0015]) coupled to the interior wall to lie in the fuel-transfer channel and arranged cooperatively to define means for guiding a tip of a siphon tube (62) moving in the fuel-transfer channel in a direction toward the diverter valve to intercept in sequence the inclined surface and the ridge of the siphon tube deflector (61) to cause the diverter valve to move to the opened position in response to continued movement of the tip of the siphon tube (62) toward the bottom wall of the fuel tank" as recited.

Regarding claim 32, in Krishnamoorthy et al., "the valve carrier (28) includes a pipe having an interior wall defining a boundary of the fuel-transport channel and a plurality of siphon tube guides (34 see para [0015]) coupled to the interior wall and arranged to lie in spaced-apart relation to one another and extend toward a longitudinally extending central axis of the pipe (28) to define therebetween a reduced-diameter passageway in the fuel-transport channel sized to receive a siphon tube (62)

moving in the fuel-transport channel toward the diverter valve (50) and guide that siphon tube (62) to engage the siphon tube deflector (61)" as recited.

Regarding claim 33, in Krishnamoorthy et al., "the interior wall of the pipe (28) has a cylindrical shape and the plurality of siphon tube guides (34 see para [015]) are circumferentially spaced apart from one another about the interior wall" as recited.

Regarding claim 34, in Krishnamoorthy et al., "each of the siphon tube guides (34) is fin-shaped and cantilevered to the interior wall of the pipe (28)" as recited.

Regarding claim 35, in Krishnamoorthy et al., "each of the siphon tube guides (34) includes a slide edge (a flat edge parallel with the longitudinal axis of the device) arranged to lie in substantially parallel relation to a longitudinally extending central axis of the pipe (28) and in close proximity to the valve seat (at the bottom of tube 28) and a (upstream facing) sloping ramp edge having a leading edge merging with the interior wall of the pipe (28) and a trailing edge (toward the seat) merging with the slide edge to cause the sloping ramp edges of the siphon tube guides (34) to converge toward the longitudinally extending central axis of the pipe (28) in a direction toward the valve seat (at the bottom of tube 28)" as recited.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10, 11, 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krishnamoorthy et al. (Patent Application Publication No. 20030116202) in view of Martin et al.

The Patent Application Publication to Krishnamoorthy et al. discloses all the claimed features with the exception of having "a sleeve surrounding a portion of the pipe formed to include the valve seat and the valve mover is pivotably coupled to the sleeve and arranged to lie outside of the fuel-transfer channel".

The patent to Martin et al. discloses that it is known in the art to employ a "sleeve", read at the tubular element integral with element 12 about seat 26 and the two projection fingers 28, 30, "surrounding a portion of the pipe formed to include the valve seat (26) and the valve mover (arms 54, 56) is pivotably coupled to the sleeve and arranged to lie outside of the fuel-transfer channel" for the purpose of mounting the pivotal valve element to the inlet housing tube and to provide some protection of the valve element when in the closed position.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Krishnamoorthy et al. a "sleeve surrounding a portion of the pipe formed to include the valve seat (at the bottom of tube 28) and the valve mover (arms 54) is pivotably coupled to the sleeve and arranged to lie outside of the fuel-transfer channel" for the purpose of mounting the pivotal valve element to the inlet housing tube and to provide some protection of the valve element when in the closed position as recognized by Martin et al.

Regarding claim 11, in Krishnamoorthy et al., "the valve mover (arms 54) includes first and second pivot pins (56) extending in opposite directions from one another to extend respectively into first and second pin receivers (38) formed in the sleeve (taught by Martin et al.) and the sleeve (taught by Martin et al.) is formed to include a first pin guide slot (32) terminating at the first pin receiver (40) and a second pin guide slot (34) terminating at the second pin receiver (42)" as recited.

Regarding claim 36, in Krishnamoorthy et al., "the valve carrier (28) includes a valve housing including a pipe (28) formed to include the valve seat and the fuel-transfer channel and a sleeve (taught by Martin et al.) surrounding a portion of the pipe formed to include the valve seat and the valve mover is pivotably coupled to the sleeve (as taught by Martin et al.) and arranged to lie outside of the fuel-transfer channel" as recited.

Regarding claim 38, in Krishnamoorthy et al., "the valve mover includes first and second pivot pins (56) extending in opposite directions from one another to extend respectively into first and second pin receivers (38) formed in the sleeve (as taught by Martin et al.) and the sleeve (taught by Martin et al.) is formed to include a first pin guide slot (32) terminating at the first pin receiver (40) and a second pin guide slot (34) terminating at the second pin receiver (42)" as recited.

Claims 13-15, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krishnamoorthy et al. (Patent Application Publication No. 20030116202) in view of Smith et al.

The Patent Application Publication to Krishnamoorthy et al. discloses all the claimed features with the exception of having "the valve mover (include) a base pivoter coupled for pivotable movement to the valve carrier at the pivot axis and a base coupled to the base pivoter to pivot therewith and formed to include a post receiver and the closure includes a mounting post formed to include a central axis extending longitudinally therethrough and arranged to extend through the post receiver formed in the base to retain the closure in coupled relation to the base yet allow limited movement of the closure relative to the base owing to movement of the central axis of the mounting post relative to the pivot axis during seating on the valve seat of the seal ring carried on

the closure during movement of the tank inlet check valve apparatus to assume the closed position".

The patent to Smith et al. discloses that it is known in the art to employ on a pivotal swing type check valve device a "the valve mover (pivot arm 10) includes a base pivoter (solid portion of arm 10) coupled for pivotable movement to the valve carrier (i.e. the valve body 1) at the pivot axis (11) and a base (the portion of arm 10 including hole 19) coupled to the base pivoter to pivot therewith and formed to include a post receiver (hole 19) and the closure (valve head 4) includes a mounting post (15) formed to include a central axis extending longitudinally therethrough and arranged to extend through the post receiver (hole 19) formed in the base to retain the closure (4) in coupled relation to the base (at arm 10) yet allow limited movement of the closure (4) relative to the base (at arm 10) owing to movement of the central axis of the mounting post (15) relative to the pivot axis (11) during seating on the valve seat (3) of the seal ring (shown on valve head 4 but not numbered) carried on the closure (4) during movement of the tank inlet check valve apparatus to assume the closed position" for the purpose of mounting the valve head to the pivot arm with relative motion therebetween permitting the valve seal carried by the valve head to align with the valve seat when so necessary and to absorb some kinetic energy when seating.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Krishnamoorthy et al. mounting of the valve head to the pivot arm permitting relative motion therebetween for the purpose of mounting the valve head to the pivot arm with relative motion therebetween permitting the valve seal carried by the valve head to align with the valve seat when so necessary and to absorb some kinetic energy when seating as recognized by Smith et al.

Regarding claim 14, in Krishnamoorthy et al., "the base pivoter includes first and second pivot arms (54) cantilevered to the base, a first pivot pin (56) coupled to the first pivot arm (54) and arranged to extend into a first pin receiver (38) formed in the valve carrier (28) to intersect the pivot axis, and a second pivot pin (56) coupled to the second pivot arm (54) and arranged to extend into a second pin receiver (38) formed in the valve carrier to intersect the pivot axis" as recited.

Regarding claim 15, in Krishnamoorthy et al. as modified by Smith et al., "the post receiver (hole 19 as taught by Smith et al.) has an inner diameter and the mounting post (15) includes a post shaft that extends through the post receiver (19) and has an outer diameter that is less than the inner diameter of the post receiver (19) so as to allow rotary motion of the diverter valve (head) relative to the valve mover in every direction within predetermined limits and a post retainer (at nut 17 of Smith et al.) that is coupled to a distal end of the post shaft (15) and has an outer diameter that is larger than the inner diameter of the post receiver (hole 19) normally to block removal of the post shaft (15) from the post receiver (19) formed in the base of the valve mover" as recited.

Regarding claim 30, in Krishnamoorthy et al., "the diverter valve includes a sealing ring (52) located to engage and establish a sealed connection with the valve seat (at the bottom of tube 28) upon movement of the diverter valve to mate with the valve seat and a closure (valve head) including a seal mount coupled to the sealing ring (52), a plate coupled to the seal mount, and (as taught by Smith et al.) a mounting post (15) extending in a first direction away from the sealing ring (52) through a post receiver (hole 19) formed in the valve member (arm 54) to allow rotary motion of the seal mount and seal ring (52) relative to the valve mover in every direction within predetermined limits to enhance establishment of the sealed connection between the sealing ring (52)

and the valve seat (at the bottom of tube 28, as taught by Smith et al.), and the siphon tube deflector (61) is arranged to extend in a second direction opposite to the first direction to project into the fuel-transfer channel upon movement of the sealing ring (52) to engage the valve seat" as recited.

Regarding claim 31, in Krishnamoorthy et al. as modified by Smith et al., "the plate (i.e. valve head) includes an interior surface closing the opening formed in the valve seat (at the bottom of tube 28) upon movement of the sealing ring (52) to engage the valve seat and the siphon tube deflector (61) includes a ridge (i.e. point) adapted to engage a siphon tube (62) extending through the filler neck to reach the bottom wall of the fuel tank upon movement of the diverter valve to an opened position and an inclined (upstream facing) surface arranged to extend between the ridge (point) and the interior surface of the plate (valve head) to intercept a siphon tube (62) passing through the fuel-transfer channel and into the fuel tank to move the valve mover (arm 54) against the biasing spring (48) to cause the diverter valve to move to the opened position and place the siphon tube (62) in engagement with the ridge" as recited.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krishnamoorthy et al. (Patent Application Publication No. 20030116202) in view of Munn.

The Patent Application Publication to Krishnamoorthy et al. discloses all the claimed features with the exception of having the "valve mover further (include) a stop member coupled to one of the first and second pivot arms and arranged to engage the valve carrier to limit pivoting movement of the valve mover about the pivot axis against the biasing spring in a direction away from the valve seat during movement of the tank inlet check valve apparatus to the opened position".

The patent to Munn discloses that it is known in the art to employ a valve "stop" at the downstream facing surface of either pivot arm 27, which eventually contacts the valve body B (see the dotted line portion of fig. 2) above the pivot axis at 28 for the purpose of providing a positive mechanical stop for valve motion.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Krishnamoorthy et al. downstream facing surfaces of the pivot arms 54 mating with the interior of the valve body at tube 28, extended to cover the valve device, for the purpose of providing a positive mechanical stop for valve motion as recognized by Munn.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krishnamoorthy et al. (Patent Application Publication No. 20030116202) in view of Perrault.

The Patent Application Publication to Krishnamoorthy et al. discloses all the claimed features with the exception of having "the first and second pivot arms are splayed and cooperate to form an acute included angle therebetween".

The patent to Perrault discloses that it is known in the art to employ a first and second "splayed" pivot arm at 53, 54 for the purpose of mounting the valve element pivotally to the valve body.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Krishnamoorthy et al. "splayed" pivot arms forming an "acute angle" therebetween for the purpose of mounting the valve element pivotally to the valve body as recognized by Perrault. As compared to Krishnamoorthy et al., this teaching of Perrault is deemed a full mechanical and functional equivalent.

Claims 3, 12, 16-19, 23, 25, 26, 37, 39, 40 and 42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in

independent form including all of the limitations of the base claim and any intervening claims.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Rivell whose telephone number is (571) 272-4918. The examiner can normally be reached on Mon.-Thur. from 6:30am-5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel can be reached on (571) 272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John Rivell
Primary Examiner
Art Unit 3753

j.r.